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## CLAIMS

- 5      1.      Method for multiple labeling detection and evaluation of a plurality of particles in specimen analysis comprising the steps of:
- 10           i) Acquisition of at least one image in a single color scale;
- ii) Separation of the plurality of particles using a color threshold;
- iii) Identification and classification of one or more particle types of the plurality of the particles based on the size and shape of the plurality of the particles to form different particle classes; and
- iv) Visualization of locations of the plurality of particles.
- 15      2.      Method according to claim 1, wherein the acquisition of contrast images is made by a slow scan cooled charge couple device camera.
3.      Method of claim 2, wherein the images are at least 14 bit images.
4.      Method of any one of the above claims, wherein the separation of the plurality of particles is carried out with reference to an underlying background image.
- 20      5.      Method of any one of the above claims, wherein the separation of the plurality of particles is carried out with reference to specimen structures.
6.      Method of any one of the above claims, wherein the images are processed using at least 16 bits.
- 25      7.      Method according to any of the above claims, wherein the image can be a photo-montage of a plurality of the images.
8.      Method according to any one of the above claims, wherein the visualization of the location of the plurality of particle is carried out by a false coloring of the plurality of particles.
- 30      9.      Method according to claim 8, wherein different false colors are used for different particle classes.
10.     Method according to any one of the above claims, further comprising the generation of an overlay image.

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11. Apparatus for the analysis of particles comprising:

- an image capture device for capturing a single color image of a specimen with a plurality of particles;
- an image enhancement device;
- an image identification and classification device for classifying the plurality of particles based on the size and shape of the plurality of the particles; and
- a display device for visualizing the specimen with the particles.

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12. Apparatus according to claim 11, wherein the image capture device is a camera connected to an electron microscope.

13. Apparatus according to claim 12, wherein the camera is a slow scan charge coupled device.

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14. Apparatus according to any one of claims 11 to 13, wherein the display devices visualize the particles in false colors.